

Serial No: 10/803,071

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Claims

1. (original) A UV curable pressure sensitive adhesive consisting essentially of:
 - a) from 15 percent to 35 percent by weight of an epoxidized monohydroxylated polydiene polymer which is comprised of at least two polymerizable ethenically unsaturated hydrocarbon monomers wherein one is a diene monomer which yields unsaturation suitable for epoxidation and wherein the polymer has been epoxidized to have from 0.1 to 7.0 meq of epoxy functional group per gram of polymer;
 - b) from 10 percent to 30 percent by weight of a hydrogenated, hydroxylated polydiene polymer which has on average from more than 1 to about 2 hydroxyl groups per molecule; and
 - c) from 1 percent to 10 percent by weight of a selectively hydrogenated starblock copolymer wherein the arms of the star comprise at least one block of hydrogenated polydiene and at least one block of poly(monovinyl arene);
 - d) from 30 percent to 70 percent by weight of a tackifier; and
 - e) from 0.01 percent to 3 percent by weight of a photoinitiator.
2. (original) The adhesive of claim 1 wherein the polymerizable ethenically unsaturated hydrocarbon monomers comprising the epoxidized monohydroxylated polydiene polymer are selected from the group consisting of isoprene, butadiene and styrene.

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3. (original) The adhesive of claim 1 wherein the diene monomer comprising the epoxidized monohydroxylated polydiene polymer which yields unsaturation suitable for epoxidation is isoprene.
4. (original) The adhesive of claim 1 wherein the epoxidized monohydroxylated polymer has from 0.5 to 4.0 meq of epoxy per gram of polymer.
5. (original) The adhesive of claim 1 wherein the epoxidized polydiene polymer has the structure I – EB – OH wherein I is a partially saturated polyisoprene block of molecular weight from 100 to 6000 daltons, EB is a predominantly saturated hydrogenated polybutadiene block of molecular weight from 1000 to 15,000 daltons, OH is a terminal primary hydroxyl group, and has an epoxy level from about 0.5 to about 4.0 meq of epoxy per gram of polymer.
6. (original) The adhesive of claim 5 wherein the partially saturated polyisoprene block has a molecular weight from 1,000 to 3,000 daltons, and the predominantly saturated polybutadiene block has a molecular weight from 3,000 to 6,000 daltons.
7. (original) The adhesive of claim 5 wherein the epoxidized monohydroxylated polymer has an epoxy level from 0.8 to 3.0 meq of epoxy functional group per gram of polymer.
8. (original) The adhesive of claim 1 wherein the hydrogenated hydroxylated polydiene polymer is composed of predominantly polybutadiene and has a peak molecular weight from 1,000 to 10,000 daltons, a vinyl content between 30% and 70%, and a hydroxyl functionality from 1.75 to 1.98.
9. (original) The adhesive of claim 3 wherein the hydrogenated hydroxylated polydiene polymer has a peak molecular weight from 2,000 to 6,000 daltons.

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10. (original) The adhesive of claim 1 wherein the hydrogenated hydroxylated polydiene polymer has at least 90% of the diene unsaturated hydrogenated.
11. (original) The adhesive of claim 1 wherein the selectively hydrogenated starblock copolymer has the structure $(S - EP)_n Y$ wherein S is a polystyrene block of molecular weight from 1,000 to 10,000 daltons, EP is a hydrogenated polyisoprene block of molecular weight from 25,000 to 100,000 daltons, n is an integer from 3 to 30, and Y is the residue of a multifunctional coupling agent.
12. (original) The adhesive of claim 11 wherein the selectively hydrogenated starblock copolymer has a polystyrene block of molecular weight from 1,000 to 6,000 daltons and a hydrogenated polyisoprene block of molecular weight from 40,000 to 60,000 daltons.
13. (currently amended) The adhesive of claim 1 wherein the photoinitiator is ~~an~~ a triaryl sulfonium salt.
14. (original) The adhesive of claim 1 wherein the photoinitiator is a diaryl iodonium salt.
15. (original) The adhesive of claim 14 wherein the photoinitiator is present in an amount from 0.025% to 1% by weight.
16. (original) The adhesive of claim 14 wherein the photoinitiator is bis(dodecylphenyl) iodonium hexafluoroantimonate.
17. (original) The adhesive of claim 1 wherein the tackifier is a hydrogenated hydrocarbon resin.

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18. (original) The adhesive of claim 17 wherein the hydrogenated hydrocarbon resin is present in an amount from 40 to 60 percent by weight.
19. (original) The adhesive of claim 17 wherein the hydrogenated hydrocarbon resin is present in an amount from 45 to 55 percent by weight.
20. (original) The adhesive of claim 17 wherein the hydrogenated hydrocarbon resin has a ring and ball softening point from 80 to 110°C.